

# Physics 102b: Classical and Modern Physics II

## Spring 2002 Course Schedule

Prof. Fronefield Crawford, Department of Physics, Haverford College

### Lecture Schedule

Lecture	Day	Date	Lecture Topics	Hecht Reading
0	Mon	Jan 21	Introduction	<i>none</i>
1	Wed	Jan 23	Hooke's Law; Simple Harmonic Motion; Elastic Restoring	10.1, 10.5, 10.6
2	Fri	Jan 25	Pendulum; Damping, Forcing, Resonance; Waves	10.7, 10.8, 11.1
3	Mon	Jan 28	Transverse, Compression Waves; Sounds Waves; Intensity	11.2 - 11.5
4	Wed	Jan 30	Sound Speed; Sound Level; Sound Beats	11.6 - 11.9
5	Fri	Feb 1	Standing Waves; Doppler Effect	11.10, 11.11
6	Mon	Feb 4	Charge; Insulators and Conductors	15.1,15.2
7	Wed	Feb 6	Coulomb's Law; Electric Field	15.3, 15.4
8	Fri	Feb 8	Electric Field; Gauss's Law	15.4 - 15.6
9	Mon	Feb 11	Gauss's Law; Electric Potential	15.6, 16.1
10	Wed	Feb 13	Electric Potential; Equipotentials	16.1, 16.2
<b>E</b>	Fri	Feb 15	<b>Midterm Exam 1</b>	<i>none</i>
11	Mon	Feb 18	Potential of Charge Distributions; Potential and E-field	16.3 - 16.6
12	Wed	Feb 20	Capacitors	16.7, 16.8
13	Fri	Feb 22	Energy in Capacitors; Electric Current	16.9, 17.1
14	Mon	Feb 25	Electric Current; Ohm's Law	17.1, 17.2
15	Wed	Feb 27	Resistivity; Voltage; Energy and Power; Current Density	17.3 - 17.6
16	Fri	Mar 1	Internal Resistance; Resistors in Series and Parallel	18.1, 18.2
17	Mon	Mar 4	Voltmeters; RC Circuits; Kirchoff's Rules; Magnets	18.3 - 18.5, 19.1
18	Wed	Mar 6	Magnetic Fields	19.2
19	Fri	Mar 8	Currents and Magnetic Fields	19.3, 19.4
-	Mon	Mar 11	<i>Spring Break</i>	<i>none</i>
-	Wed	Mar 13	<i>Spring Break</i>	<i>none</i>
-	Fri	Mar 15	<i>Spring Break</i>	<i>none</i>
20	Mon	Mar 18	Magnetic Forces on Moving Charges and Currents	19.4 - 19.6
21	Wed	Mar 20	Faraday's Induction Law; Motional emf	20.1, 20.2
22	Fri	Mar 22	AC and DC Generators; Inductance; RL Circuits	20.2 - 20.6
23	Mon	Mar 25	EM Waves; Irradiance; Energy Quanta; Atoms and Light	22.2 - 22.7
24	Wed	Mar 27	EM Spectrum; Scattering; Reflection	22.8 - 22.14, 23.1 - 23.3
25	Fri	Mar 29	Refraction; Total Internal Reflection	23.4 - 23.6
26	Mon	Apr 1	Lenses; Focal Points and Focal Planes	24.1 - 24.4
27	Wed	Apr 3	Single and Combination Lenses	24.5, 24.6
<b>E</b>	Fri	Apr 5	<b>Midterm Exam 2</b>	<i>none</i>
28	Mon	Apr 8	Mirrors; Polarization	24.7, 25.1
29	Wed	Apr 10	Polarization; Young's Experiment	25.2 - 25.4
30	Fri	Apr 12	Diffraction	25.7 - 25.9
31	Mon	Apr 15	AC Current; Reactance	21.1 - 21.3
32	Wed	Apr 17	LCR Circuits; Impedance; Power and Resonance	21.4
33	Fri	Apr 19	X-rays; Radioactivity; Atomic Spectra; Radiation	27.2 - 27.6
34	Mon	Apr 22	Blackbody Radiation; Photoelectric Effect	28.1, 28.2
35	Wed	Apr 24	Photoelectric Effect; Bohr Atom; Lasers	28.5, 28.6
36	Fri	Apr 26	de Broglie Waves; Complementarity	29.1, 29.2
37	Mon	Apr 29	Schroedinger's Equation; Quantum Numbers; Zeeman Effect	29.3 - 29.5
38	Wed	May 01	Spin; Uncertainty Principle	29.6, 29.7, 29.9
39	Fri	May 03	Review ( <i>all course work due today</i> )	<i>none</i>

The **Final Exam** is a take-home exam to be taken during final exam week (between Wed May 8 and Fri May 17).

## Lab Schedule

Lab	Dates	Lab Title	Points
1	Tue Feb 5 and Wed Feb 6	Sound	20
2	Tue Feb 19 and Wed Feb 20	Electric Field Mapping	20
3	Tue Mar 5 and Wed Mar 6	DC Circuits	20
4	Tue Mar 26 and Wed Mar 27	Electron q/m Ratio	40
5	Tue Apr 9 and Wed Apr 10	Geometric Optics	20
6	Tue Apr 23 and Wed Apr 24	Atomic Spectra	20